

Serial No. 09/773,574
Amtd. dated March 21, 2005
Reply to Office Action of December 21, 2004

Docket No. K-0259

REMARKS/ARGUMENTS

Claims 1-14, 17- 20 and 45-72 are pending. By this Amendment, claims 1-9, 11-14, 17-20 and 45 are amended, claims 15, 16 and 21-44 are canceled without prejudice or disclaimer and dependent claims 49-72 are added.

The abstract stands objected to based on informalities. The indicated informalities in the abstract have been amended by deleting the objected to and other acronyms in the abstract. Withdrawal of this objection is respectfully requested.

The disclosure and the drawings stand objected to based on various informalities. Attached herewith is a substitute specification and marked-up specification to address all of the issues indicated in the disclosure and drawing objections, especially to replace "CD-AICH" to --CD-ICH-- and "CA-AICH" to --CA-ICH--. The background has also been amended to delete an error in translation, and incorrect description of the background art characterizing the invention. Further, the drawing changes are not required in view of the amendments to the specification.

Claims 1, 6, 7, 9, 12, 15 and 24 stand objected to based on informalities. The amendments to the claims obviate this objection, and withdrawal of such an objection is respectfully requested.

Claim 6 stands rejected under 35 U.S.C. §112, second paragraph. The indicated informalities of this claim have also been corrected in view of the claim amendments to more

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particularly point out the subject matter. Hence, withdrawal of this Section 112, second paragraph, rejection is respectfully requested.

Claims 11-14 and 17-20 are objected to and indicated as allowable if rewritten in independent form. However, claims 1-10, 15-16 and 21-44 stand rejected based on the following:

- (1) Claims 1, 3, 4, 5, 6, 7, 5, 22, 23, 35, 36, 37, 43, and 44, are rejected under 35 U.S.C. 102(e) over U.S. Patent No. 6,450,525 (Parsa et al.).
- (2) Claims 2, 9, 10, 15, 16, 21, 24, 26, 27, 29, 30, 31, 38, 39, 40, 41, and 42, are rejected under 35 U.S.C. 103(a) over U.S. Patent No. 6,480,525 (Parsa et al.) in view of the ETSI document titled: “Universal Mobile Telecommunications Systems (UMTS); Physical Layer Procedures (FDD)”, 3G TS 25.213, as submitted by applicant.

The rejection of canceled claims 15, 16 and 21-44 are moot. Further, claims 11-14 and 17-20 have been rewritten in independent form for the sole purpose of expediting the prosecution. Further, the Patent Office fails to address new claims 45-48, which were added via a Preliminary Amendment filed on May 25, 2001.

The rejection of claims 1, 5 and 9 is respectfully traversed. Parsa or the ETSI document fails to disclose or teach “a channelization code for a control part of the message is spread by a code $C_c = C_{256,0}$ of Orthogonal Variable Spreading Factor (OVSF) codes and a data part of the message is spread by a code $C_d = C_{SF,k}$ of the OVSF codes, and wherein SF is the spreading

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factor of the data part, and $k = SF/y$, wherein y is an integer greater than 0," and the combination thereof (recited feature 1). Further, the Parsa and the ETSI document fails to disclose under Section 102 or render obvious under Section 103 the claimed feature of the "preamble having one of a plurality of signatures, where each of the plurality of scrambling codes used for the CPCH has a one-to-one correspondence to a signature," and the combination thereof (recited feature 2).

The Patent Office admits that Parsa et al. does not disclose or teach recited feature 1 of claims 1, 5 and 9. However, the Patent Office relies upon the ETSI document, where a channelization code for the control part is chosen from the lowest branch of the sub-tree, and a channelization code for the data part is chosen from uppermost branch of the sub-tree code. Such a disclosure by the ETSI document teaches the opposite of recited feature 1 of claims 1, 5 and 9.

Attached herewith is a sample OVSF code tree, which shows spreading factors 1 to 16. The uppermost part of the sub-tree for a spreading factor 16 is $Code_{16,0}$ and the lowest branch of the sub-tree of the for spreading factor 16 is $Code_{16,15}$. In other words, the uppermost is the top of the code tree and the lowest is the bottom of the code tree. In this regard, the claims recite that the control part is spread by a code $C_{256,0}$ and the data part is spread by code $C_{SF,k}$. In other words, in the recited feature 1 of claims 1, 5, and 9, the control part is spread by the uppermost of the OVSF code tree, which is opposite of the disclosure of the ETSI document.

The Patent Office also makes an assumption regarding the disclosure of Parsa et al. for rejecting the claims assuming that there is a one-to-one correspondence. As the Patent Office may be aware, there are spreading codes (channelization) and scrambling codes. Previously, there was no one-to-one correspondence between each of the scrambling codes to a signature of a preamble. It is erroneous to assume that Parsa et al. would disclose recited feature 2, and it is respectfully submitted that the Patent Office provide a secondary reference teaching such conclusion.

Further, the ETSI document does not explicitly disclose the one-to-one correspondence since the disclosure therein is unclear. To specifically distinguish over Parsa et al. and the ETSI document, independent claims 1, 5, and 9 have been amended to recite that the preamble has one of a plurality of signatures, where each of a plurality of scrambling codes used for the CPCH has a one-to-one correspondence to a signature. It is respectfully submitted that neither Parsa nor the ETSI document discloses recited feature 2 of claims 1, 5 and 9.

As indicated above, the Patent Office failed to address claims 45-48. Independent claim 45 is similarly allowable regarding the first feature and the combination thereof, similar independent claims 1, 5 and 9. Further, none of the references disclose or teach the channelization codes used for the control part and the data part, as recited in independent claim 47.

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It is respectfully submitted that neither Parsa et al. nor the ETSI document disclose or teach all the claimed features and the combination thereof. Hence, withdrawal of the Sections 102 and 103 rejections is respectfully requested.

New dependent claims 49-72 have been added to independent claims 1, 5, 9 and 45. These dependent claims relate to the scrambling codes, and it is respectfully submitted that none of the applied references disclose or teach these features. Hence, it is respectfully submitted that these dependent claims are also allowable.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

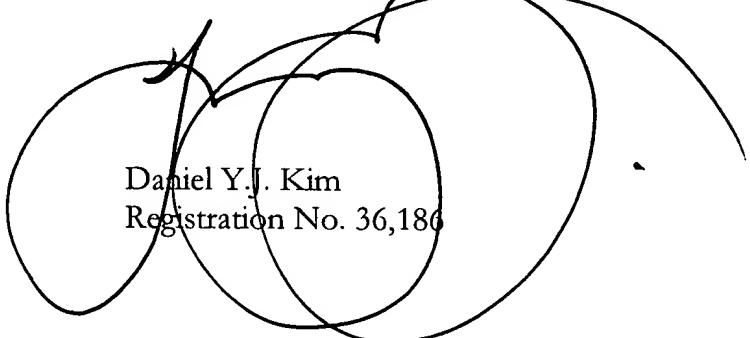
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this,

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concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and
please credit any excess fees to such deposit account.

Respectfully submitted,
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Date: March 21, 2005

Attachments: Abstract
"Intro to 3G Mobile Communication", page 114
Marked-up Substitute Specification
Clean Substitute Specification

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Please direct all correspondence to Customer Number 34610

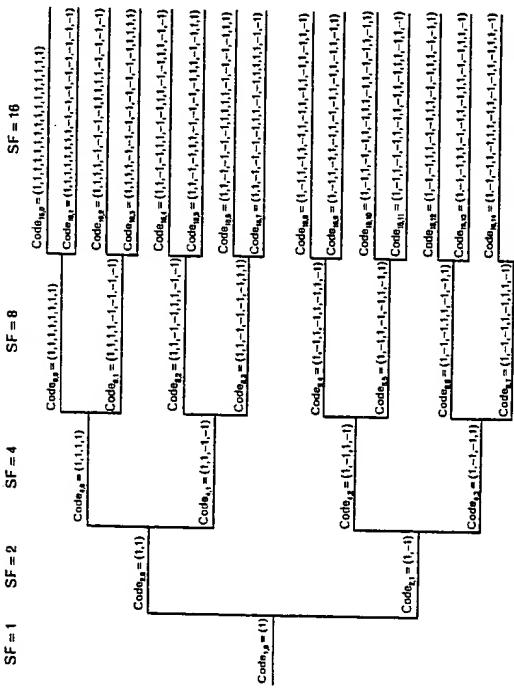


FIGURE 5.2 Orthogonal codes.

orthogonal channelization code. Thus, in the real world the downlink environment is never purely orthogonal and interference free. Intracell interference exists because of multipath reflections and intercell interference from asynchronous base stations. From the asynchronous nature of the system follows inter-base-station nonorthogonality. However, the intercell interference is not as serious a problem as it might at first seem because power control and soft handovers (SHOs) should keep the other base stations from interfering too much with the downlink signal to a particular UE.

5.2 PN Codes

The orthogonal codes alone cannot handle the spreading function in the UTRAN air interface. As explained earlier, they can only be used when the signals applying them are time synchronous. Clearly this is not the case

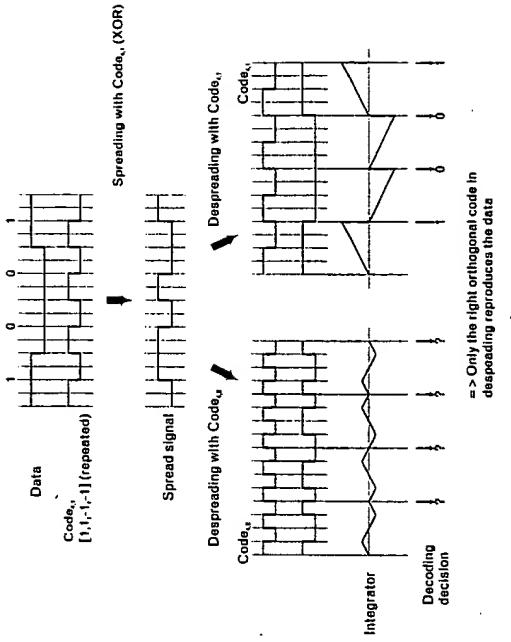


FIGURE 5.3 Use of orthogonal codes.

between asynchronous users in the uplink direction. If orthogonal spreading codes alone were used in the uplink, then they could easily cancel each other. Moreover, the downlink signals are only orthogonal within one base station. But even in this case, orthogonality is partially lost with channel distortions. The base station's orthogonality decreases as we move out toward the mobiles. Therefore, something else is needed.

To solve these problems, the system employs pseudorandom codes. They are used in the second part of the spreading procedure, which is called the scrambling stage. In the scrambling procedure, the signal, which is already spread to its full bandwidth with an orthogonal spreading code, is further combined (XORed) with a pseudorandom scrambling code. This scrambling code is either a long code (a Gold code with a 10-ns period) or a short code [S(2) code]. These pseudorandom codes have good autocorrelation properties (see Section 5.4). There are millions of scrambling codes available in the uplink, so no special code management is needed. A spreading code identifies the specific UE to the base station. And once the uplink synchronization is obtained, various services of this UE can be separated using orthogonal codes. Note, however, that there are proposals to